



Rialtas na hÉireann
Government of Ireland

Irish Sovereign Green Bond

Eligible Green Projects
Impact Report 2020



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Introduction and Summary

This is the third eligible green projects impact report issued in accordance with the Irish Sovereign Green Bonds (“ISGB”) Framework. It details the environmental impact measures connected to the 2020 allocation report.

ISGBs are designed to provide investors with the financial features of a standard Irish government bond combined with sovereign green bond market practices. ISGB proceeds are paid into the Central Fund as with standard government bonds. Amounts raised through the sale of ISGBs are allocated against Eligible Green Projects which generate a positive environmental benefit.

In 2020, €2,389.1 million was allocated to Eligible Green Projects (see Appendix 1).

In the 2020 Allocation Report, environmental impact indicators were included across the six categories eligible for allocation:

- Built Environment/Energy Efficiency
- Clean Transportation
- Climate Change Adaptation
- Environmentally Sustainable Management of Living Natural Resources and Land Use
- Renewable Energy
- Sustainable Water and Wastewater Management

Acknowledgements

This Report was produced with the co-operation of Government departments and other State bodies responsible for expenditure and subsidies which are allocated from the proceeds of ISGBs. The ISGB Working Group is grateful to the many colleagues who provided information and assistance.

Those Government departments and State bodies are as follows¹:

- [Department of Finance](#)
- [Department of Public Expenditure and Reform](#)
- [Department of Housing, Local Government and Heritage](#)
- [Department of Transport](#)
- [Department of Agriculture, Food and the Marine](#)
- [Department of the Environment, Climate and Communications](#)
- [Office of Public Works \(OPW\)](#)
- [National Treasury Management Agency \(NTMA\)](#)

¹ Government Departments and State bodies referenced in this report are as they were organised in May 2022 when this report was drafted.

Eligible Green Projects Impact Report Year End 2020

The purpose of impact reporting is to assist investors in ISGBs with a better understanding of the possible environmental impacts of the Eligible Green Projects. A number of key impact indicators are provided and, where possible, quantified. However, there are inherent limitations in the data presented. As impact indicators are only available at a programme level a total green expenditure figure is given alongside the allocation figures, and an allocation percentage is provided.

An important consideration in the estimation of impact indicators is the underlying assumptions. While technical experts aim to make sound and conservative assumptions that are reasonable based on the information available at the time, the actual environmental impact of the projects may diverge from the impacts as quantified in the tables².

In some cases quantitative indicators were unavailable; therefore qualitative data has been included to demonstrate other valuable impacts. In addition, some programmes also provide social benefits as well as climate related benefits. This report focuses only on the environmental impacts.

Carbon tax

Allocations were adjusted in the 2020 Allocation Report to take account of the proceeds from the carbon tax.

Compliance Review by Sustainalytics

Based on the limited assurance procedures conducted, nothing has come to Sustainalytics' attention that causes us to believe that, in all material respects, the projects funded with proceeds from the Government of Ireland's Irish Sovereign Green Bonds are not in conformance with the use of proceeds and reporting criteria outlined in the Irish Sovereign Green Bond Framework. The Government of Ireland has disclosed to Sustainalytics that the proceeds from the Irish Sovereign Green Bonds were fully allocated as of December 2021.

The full compliance review is available at this [link](#).

² Harmonized Framework for Impact Reporting. The Green Bond Principles. ICMA. June 2019. <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2019/Handbook-Harmonized-Framework-for-Impact-Reporting-WEB-100619.pdf>

Built Environment/Energy Efficiency

Environmental Objectives: Climate Change Mitigation



Project/Programme/ Scheme	Green Expenditure (€ Million)*	ISGB Proceeds Allocation including 2019 adjustments (€ Million)	Allocation Percentage from ISGB Proceeds	Impact Indicator		Other impact indicators and additional Information
Sustainable energy programmes, Sustainable Energy Authority of Ireland (SEAI) admin and general expenses	139.6	117.1	84%	Annual energy savings (GigaWatt Hours)	138.7	<ul style="list-style-type: none">Residential and Commercial Building Energy Ratings published: 96,306 SEAI also manages EV grants including: the Electric Vehicle Grant Scheme and Vehicle Home Charger Grant Scheme <ul style="list-style-type: none">Number of Electric Vehicle Grants provided: 4,843Value of Electric Vehicle Grants provided (€m): 23.6Number of Electric Vehicle Home Charger Grants provided: 2,523The Public Sector Pathfinder Retrofit Programme is a co-funded capital programme, which provides support for a retrofit programme to decarbonise public buildings in a number of key sectors. The programme is co-funded with various partners and administered by the SEAI. This Programme facilitated the upgrade of over 70 buildings across the central government, health, and education sectors, at a cost of over €18m in 2020.
				Annual Greenhouse gas emissions reduced/ avoided in kilotonnes of CO ₂ equivalent	35.2	
				Number of homes renovated	17,616	
				Number of people who benefited from grants	25,982	
Estate regeneration – social housing improvements	10	10	100%	Annual energy savings (GigaWatt Hours)	17.3	Please see note 1 for detailed information
				Annual Greenhouse gas emissions reduced/ avoided in kilotonnes of CO ₂ equivalent	3.8	
				Number of homes renovated	1,470	

Total Allocated 2020 to Built Environment/Energy Efficiency	127.1
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Figures may not total due to rounding

* As impact indicators are only available at a programme level a total green expenditure figure is given alongside the allocation figures, and an allocation percentage is provided.

Note 1 – Estate regeneration – social housing improvements

Period of construction		Total annual savings for 1,470 units retrofitted in 2020		
		Primary energy use		
		(GWh/yr)	CO ₂ Emissions (ktCO ₂ /yr equivalent)	
Proportion of stock				
1930-1971	48.4%	11.3	2.5	
1972-1978	19.0%	4.2	0.9	
1979-1982	8.9%	0.8	0.2	
1983-1991	23.7%	1.0	0.2	
TOTAL	100%	17.3	3.8	

Calculations are based on a typical two-storey end-of-terrace house of 85.3m2 floor area. Calculations are carried out in accordance with DEAP 4.2 methodology and software.

The average size of 85.3m2 is based on SEAI BER database for end-of-terrace houses in the Midlands. The primary Energy use and CO₂ emission savings have been worked out per period of construction of social housings. The proportion of dwellings per period of construction is taken from Table 5.4 of the report "Jobs, Growth and Reduced Energy Costs: Green print for a national Energy Efficiency Retrofit Programme", published in 2009 by The Institute of International and European Affairs.

It is assumed that all dwellings had been previously upgraded with a gas boiler with an efficiency of 86% before undergoing the SHIP Phase 1 renovation. It is assumed that only dwellings built before 1991 were retrofitted. It is assumed that Phase 1 retrofit works are the upgrading ceiling insulation to 0.16 W/m2.K and wall insulation to 0.35 W/m2.K.

Clean Transportation

Environmental Objectives: Pollution Prevention and Control/Climate Change Mitigation

Sustainable Development Goals



Project/Programme/ Scheme	Green Expenditure (€ Million)	ISGB Proceeds Allocation including 2019 adjustments (€ Million)	Allocation Percentage from ISGB Proceeds	Impact Indicator		Other impact indicators and additional Information
Carbon reduction	1.9	2.4*	100%	Take-up of Grant Schemes – SPSV (Number of grants issued)	20	SPSV Grant Scheme <ul style="list-style-type: none"> Take-up of Grant Schemes – cost: €159,000 EV Toll Incentive <i>Greenhouse gas emissions reductions for EV toll Incentive (ktCO₂e) cannot be calculated as it would be disingenuous to state that the Toll scheme was the primary reason to switch to an EV; it is one of a broader suite of incentives that promote the transition to EVs</i>
				Take-up of Grant Schemes – EV toll incentive (Number of transactions)	559,682	
Low Emission Vehicle Incentivisation LEV (Tax foregone)	39.1	39.1	100%	Take-up of Grant Schemes – BEVs (Number of grants issued)	4,444	Cost of VRT for less environmentally harmful vehicles breakdown <ul style="list-style-type: none"> Total cost of relief BEVs (€m): 21.3 Total cost of relief PHEVs (€m): 12.1 Total cost of electric hybrids (€m): 5.7
				Take-up of Grant Schemes – PHEVs (Number of grants issued)	6,253	
				Take-up of Grant Schemes – Electric Hybrids (Number of grants issued)	5,410	
Public service provision payments	623.5	623.5	100%	Passenger Journeys (Million)	137.7	<ul style="list-style-type: none"> See note 2 for breakdown information on Public service provision payments and Sustainable transport investment programme details
Public and sustainable transport investment programme	624.1	617.1	99%	Annual operated vehicle kilometres (millions)	108.3	
				Annual operated vehicle seat kilometres (millions)	11,510	
Greenways	4.8	0.9	19%	Additional km of greenway projects funded for feasibility/detailed design/ environmental screening	10	<ul style="list-style-type: none"> 280,000 users on Waterford greenway. 256,719 users on Old Rail Trail greenway (measured at White Gates, Athlone, County Westmeath) 188,472 users on the Royal Canal Greenway (data counter readout from Kilcock, County Kildare)

Total Allocated 2020 to Clean Transportation	1,283.0
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Figures may not total due to rounding

* This figure includes an additional spend on Carbon reduction in 2019; to which proceeds were allocated in the 2020 Allocation Report.

Clean Transportation

Note 2 – Public service provision payments and Sustainable transport investment programme details

Annual Public Service Provision Payment (PSPP) Passenger Journeys (Millions)	2020
PSPP Public Transport Passenger Numbers:	137.7
LUAS Passenger Numbers	19.2
Iarnród Éireann Passenger Numbers	17.9
Dublin Bus Passenger Numbers	68.9
Bus Éireann Passenger Numbers	20.0
Go Ahead Passenger Numbers	8.7
Other services	3.0

Annual PSPP Fleet & Tram Numbers	2020
PSPP Bus Fleet numbers – Dublin Bus/Go Ahead	1,209
PSPP Bus Fleet numbers – Bus Éireann	587
LUAS tram numbers	81

Additional Measures (Additional metres)	2020
Footpath	46,734
Shared Footpath/Cycle Track	7,640
Cycle Lane/Track	72,022
Bus Lane	1,609

Annual Operated Vehicle Kilometres* (Millions)	2020
LUAS	4.3
Iarnród Éireann	14.7
Dublin Bus	46.1
Bus Éireann	43.2

Annual Operated Vehicle Seat Kilometres** (Millions)	2020
LUAS	1,339.9
Iarnród Éireann	5,448.7
Dublin Bus	3,143.3
Bus Éireann	2,577.6

* Operated vehicle kilometre refer to the actual amount of vehicle kilometres that a bus or rail company has operated in a given period, as opposed to scheduled vehicle kilometres' which would indicate the number of vehicle kilometres that they intended to operate as per their cumulative timetables.

** Vehicle seat-kilometres is a unit of passenger transport capacity measuring the total number of seats available multiplied by the kilometres travelled.

Dublin Bus and Bus Éireann Emissions Metrics	2020
Passenger Journeys for Dublin Bus and Bus Éireann (millions)	88.9
CO ₂ e (tns) – Dublin Bus network buses	61,026
CO ₂ e (tns) – Bus Éireann network buses	46,615
CO ₂ e (tns) – Bus Éireann and Dublin Bus	107,641
CO ₂ e (grams) per passenger journey – Dublin Bus	885
CO ₂ e (grams) per passenger journey – Bus Éireann	2,333
CO ₂ e (grams) per passenger journey – Dublin Bus and Bus Éireann	3,218

Climate Change Adaptation

Environmental Objectives: Climate Change Adaptation



Project/Programme/ Scheme	Green Expenditure (€ Million)	ISGB Proceeds Allocation (€ Million)	Allocation Percentage from ISGB Proceeds	Impact Indicator	
Flood Risk Management	63.2	63.2	100%	No. of Properties Protected on completion	8,296
				Damages/Losses Avoided on completion (€ Million)	728

Total Allocated 2020 to Climate Change Adaptation	63.2
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Note – breakdown of Flood Risk Management by Project

Project	Current Status	No of Properties Protected on Completion	Damage/Losses Avoided on Completion (€ Million)
Ashbourne	Under construction	45	3
Athlone FRS	Under construction	554	48
Bandon FRS	Substantially completed	392	33
Claregalway	Substantially completed	77	11
Clonakilty	Under construction	296	34
Douglas/Togher	Under construction	221	35
Dunkellin	Substantially completed	23	9
Ennis South	Under construction	126	5
Enniscorthy	At planning	326	52
Kings Island (Limerick)	At planning	473	37
River Dodder (Dublin)	Tidal phase completed and Fluvial phase under construction	1,938*	70
River Lee (Cork city)	At scheme development	2,100	185
Templemore FRS	Under construction	109	27
Ennis Lower	Under construction	1,274	123
Morell	Under construction	30	20
Skibbereen	Substantially completed	312	36
Total		8,296	728

* (includes 1,000 already protected by Tidal phase)

Environmentally Sustainable Management of Living Natural Resources and Land Use

Environmental Objectives: Pollution Prevention and Control/Climate Change Mitigation/Natural Resource Conservation/Biodiversity

Sustainable Development Goals



Project/Programme/ Scheme	Green Expenditure (€ Million)	ISGB Proceeds Allocation including 2019 adjustments (€ Million)	Allocation Percentage from ISGB Proceeds	Impact Indicator		Other impact indicators and additional Information
Forestry and bioenergy	79.2	100.5*	100%	Afforestation (hectares of broadleaf planted)	819	<ul style="list-style-type: none"> Number of landowners who planted: 361 Annual Forestry Statistics
				Afforestation (hectares of conifers planted)	1,615	
Environmental protection agency	43.2	43.2	100%	Number of reports published	32	<ul style="list-style-type: none"> Number of environmental research reports published: 54 Visits to drinking water sites: 51 Visits to Industrial, waste, dumping at sea and VOC facilities: 1,089 Radiation licences issued: 937 Prosecutions heard: 13 Number of environmental queries from the public: 2,410
				Number of visits to Urban Waste Water Sites	127	
				Environmental licences issued (permits, authorisations and licences)	200	
International Climate Change Commitments	4.5	4.5	100%	Number of reports published	1	Ireland's Climate and Environmental Finance Report
Landfill remediation	12.0	12.0	100%	Number of landfill sites remediated	1	<ul style="list-style-type: none"> Number of Local Authorities in receipt of funding for landfill remediation: 19 Number of Landfill Remediation projects being funded: 76 Number of Local Authorities in receipt of funding for Diesel laundering clean-up: 2 EPA Code of Practice Environmental Risk Assessment for Unregulated Waste Disposal Sites
				Number of Diesel laundering sites cleaned up	53	
Climate Initiatives – Technical Research And Modelling	4.9	4.9	100%	Number of reports published	21	Sample reports Technical documentation of I3E model, version 3, ESRI Survey and Statistical Report Series (SUSTAT) No: 91 National Air Pollution Control Plan (2020) Report by EnvEcon Factors influencing early battery electric vehicle adoption in Ireland (Renewable and Sustainable Energy Reviews, 2020) July 2020. The Role of Energy Technology in Climate Mitigation in Ireland: Irish TIMES Phase 3. EPA Research
National heritage (NPWS)	18.0	18.0	100%	Number of species held by the National Biodiversity Data Centre	16,500	<ul style="list-style-type: none"> Number of records held by National Biodiversity Data Centre: 4,444,990 Number of Natural sites with Site Specific Conservation Objectives: 10 National Biodiversity Action Plan
				Number of NPWS farm plan schemes	69	
Peatlands restoration and management	7.0	2.0	29%	Land area conserved/restored (hectares)	338	<ul style="list-style-type: none"> Number of designated raised bogs where conservation/restoration measures have commenced: 4 Number of annual payments made under the Cessation of Turf Cutting Compensation Scheme for designated raised bogs: 2,683

Total Allocated 2020 to
Environmentally Sustainable
Management of Living Natural
Resources and Land Use

185.1

Figures may not total due to rounding

* This figure includes an additional spend on Forestry and bioenergy in 2019; to which proceeds were allocated in the 2020 Allocation Report.

Renewable Energy

Environmental Objectives: Climate Change Mitigation



Project/Programme/ Scheme	Green Expenditure (€ Million)	ISGB Proceeds Allocation (€ Million)	Allocation Percentage from ISGB Proceeds	Impact Indicator		Additional Information
Energy research programmes	7.8	7.8	100%	Number of companies (including public sector organisations) benefitting from SEAI Research & Innovation programmes as lead, partner or active collaborators	19	<p>The 2019 call for project proposals under the National Energy Research Development & Demonstration funding programme resulted in 51 research projects bring awarded funding. Total funding awarded amounted to €11 million over the period 2019 to 2024. As the projects are up to 4 years in duration, the environmental benefits of the research undertaken with not be released until at least the mid part of this decade.</p> <p>The projects cover a wide range of topics, such as developing citizen and community support for renewable energy (which is a prerequisite to meeting our national energy objectives), determining the feasibility of Carbon capture utilisation & storage in Ireland, charging strategies and infrastructure design for transition to electrified fleets and testing of materials to protect wind turbine blades from leading edge erosion.</p> <p>4 of the projects were co-funded with the European Commission under the ERA-Net Smart Energy systems 2018 RegSys Joint Call</p> <p>In 2020, the Department of the Environment, Climate and Communications was not in a position to commit additional funding for another call for projects for the 2020 to 2024.</p>
				Number of SEAI Research & Innovation awards benefitting research institutions	11	

Total Allocated 2020 to Renewable Energy	7.8
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Sustainable Water and Wastewater Management

Environmental Objectives: Climate Change Adaptation/Biodiversity/Natural Resource Conservation/Pollution Prevention and Control



Project/Programme/ Scheme	Green Expenditure (€ Million)	ISGB Proceeds Allocation (€ Million)	Allocation Percentage from ISGB Proceeds	Impact Indicator		Other impact indicators and additional Information
Rural water programme	44.0	44.0	100%	Total no. of Private Wells (new and upgraded)	1,921	<ul style="list-style-type: none">No. of Operational Supports to Private Group Water Schemes: 543No. of Operational Supports to Public Group Water Schemes: 177 Three-year investment programme for water services in rural areas
				Total no. of Septic Tanks (upgraded)	112	
Irish Water Capital Expenditure for the provision of domestic water services	679.0	679.0	100%	Water savings (million litres of water per day)	227.6	<p>Conservation (Water savings million litres of water per day) is made up of:</p> <ul style="list-style-type: none">Private side leakage savings (MI/day): 13.7Public side leakage savings (MI/day): 213.9Number of people removed from a boil water notice in place for longer than 30 days: 14,568Number of water supply schemes removed from the Environmental Protection Agency's Remedial Action List (RAL), which highlights the water supplies that pose a risk to customers: 11Implementation of the Irish Water Lead in Drinking Water Mitigation Plan (number of lead services replaced): 3,025 <p>Wastewater Quality</p> <ul style="list-style-type: none">Reduction in number of untreated agglomerations with no treatment or preliminary treatment of raw sewage: 1Number of agglomerations removed from the EPA's Priority Areas for Wastewater Improvement List 11 Capital Investment Plan 2020-2024
				New and upgraded water treatment plants	5	
				Length of water main laid – New and rehabilitated (Km total)	178	
				New and upgraded wastewater treatment plants	7	
				Length of sewer laid-New and rehabilitated (km total)	42	

Total Allocated 2020 to Sustainable Water and Wastewater Management	723.0
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Figures may not total due to rounding

Appendix 1: Allocation Table³

Eligible Green Categories	Note	Project/Programme/Scheme	2020 Green Expenditure (€m)	2020 Allocation* (A)	2019 Green Expenditure (Appropriation Accounts)	Adjustment to 2019 Allocation (B)	ISGB Proceeds Allocation (A+B)
Built Environment/ Energy Efficiency Total			149.6	127.1	216.0	0.0	127.1
Built Environment/Energy Efficiency breakdown of programmes and schemes	1	Sustainable energy programmes	127.2	104.7	151.2	0.0	104.7
	2	SEAI admin and general expenses	12.4	12.4	17.4	0.0	12.4
	3	Estate regeneration – social housing improvements	10.0	10.0	47.5	0.0	10.0
Clean Transportation Total			1,293.4	1,282.9	839.2	0.1	1,283.0
Clean Transportation breakdown of programmes and schemes	4	Carbon reduction	1.9	0.4	5.6	2.0	2.4
	5	Low Emission Vehicle Incentivisation LEV (Tax foregone)	39.1	39.1	45.3	0.0	39.1
	6	Public service provision payments	623.5	623.5	308.0	0.0	623.5
	7	Sustainable mobility investment programme	624.1	619.6	469.9	-2.5	617.1
	8	Greenways	4.8	0.3	10.4	0.6	0.9
Climate Change Adaptation Total			63.2	63.2	58.3	0.0	63.2
Climate Change Adaptation breakdown of programmes and schemes	9	Flood Risk Management	63.2	63.2	58.3	0.0	63.2

³ Figures may not total due to rounding.

Eligible Green Categories	Note	Project/Programme/Scheme	2020 Green Expenditure (€m)	2020 Allocation* (A)	2019 Green Expenditure (Appropriation Accounts)	Adjustment to 2019 Allocation (B)	ISGB Proceeds Allocation (A+B)
Environmentally Sustainable Management of Living Natural Resources and Land Use Total			166.8	161.8	157.5	23.3	185.1
Environmentally Sustainable Management of Living Natural Resources and Land Use breakdown of programmes and schemes	10	Forestry and bioenergy	79.2	79.2	89.7	21.3	100.5
	11	Environmental protection agency	43.2	43.2	38.8	0.0	43.2
	12	International Climate Change Commitments	4.5	4.5	2.5	0.0	4.5
	13	Landfill remediation	12.0	12.0	7.0	0.0	12.0
	14	Climate Initiatives – Technical Research and Modelling	2.9	2.9	2.0	2.0	4.9
	15	National heritage (NPWS)	18.0	18.0	13.5	0.0	18.0
	16	Peatlands restoration and management	7.0	2.0	4.0	0.0	2.0
Renewable Energy Total			7.8	7.8	10.3	0.0	7.8
Renewable Energy breakdown of programmes and schemes	17	Energy research programmes	7.8	7.8	10.3	0.0	7.8
Sustainable Water and Wastewater Management Total			723.0	723.0	687.1	0.0	723.0
Sustainable Water and Wastewater Management Breakdown	18	Rural water programme	44.0	44.0	41.1	0.0	44.0
	19	Irish Water Capital Expenditure	679.0	679.0	646.0	0.0	679.0
Grand Total spending and allocations			2,403.8	2,365.8	1,968.4	23.3	2,389.1

GWh	GigaWatt hours
GHG	Greenhouse Gas
ktCO₂e	Kilotonnes of carbon dioxide equivalent
KM	Kilometre
VOC	Volatile Organic Compounds
EV	Electric vehicle
BEV	Battery electric vehicle
PHEV	Plug-in hybrid electric vehicle
LEV	Low emission vehicle
na	Indicator is not applicable for Project/Programme/Scheme
NPWS	National Parks & Wildlife Service
SEAI	Sustainable Energy Authority of Ireland
UWWTD	Urban Waste Water Treatment Directive
VRT	Vehicle Registration Tax



Dingle Peninsula, Kerry



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